How Do Innovation Agencies Evaluate and Select Projects? A Comparison of 12 European Agencies

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HOW DO INNOVATION AGENCIES EVALUATE AND SELECT PROJECTS?

A COMPARISON OF 12 EUROPEAN AGENCIES

PETER BIEGELBAUER, THOMAS PALFINGER AND SABINE MAYER

Evaluation happens not only on the policy level, it is also an important function of innovation agencies, i.e. applied research funding organisations. Research funding agencies - regardless of focusing on applied or basic research - have to evaluate project proposals in order to select the most promising proposals for funding (Lepori et al 2007). Since the funding of societally and economically relevant research is the most important task of research funding agencies, project selection is the very core of their business.

Besides some research on peer reviewing (e.g. Lamont 2009, Mallard et al 2009, Bulathsinhala 2014, Sattler et al 2015), there is only little verified knowledge available on project evaluation and selection processes (e.g. Biegelbauer/Palfinger 2016). In a recently finished study for the Taskforce Select of the European Association of national innovation agencies, Taftie, a comparison of the respective procedures of 12 European innovation agencies has been carried out.

These are Banque publique d'investissement (BPI-France), Centre for the Development of Industrial Technology (CDTI, Spain), Enterprise Estonia (EE), The Austrian Research Promotion Agency (FFG), Croatian Agency for SMEs, Innovation and Investments (HAMAG-BICRO), Agency for Innovation by Science and Technology (IWT, Flanders), which has with 2016 been renamed into Flanders Innovation & Entrepreneurship (Vlaio), Polish Agency for Enterprise Development (PARP), Project Management Jülich (PT-Jülich, Germany), The Research Council of Norway (RCN), Netherlands Enterprise Agency (RVO), Technology Agency of the Czech Republic (TA-CR) and The Swedish Governmental Agency for Innovation Systems (VINNOVA).

The 12 innovation agencies are quite different from each other. In terms of functions the innovation agencies have to fulfil, some are very broad, such as those of BPI-France, which amongst others guarantees for bank financing and venture capital, has investments and operational cycle financing alongside banking and financial institutions, engages in equity investment directly or through partner funds and supports exports. By way of comparison e.g. the Research Council of Norway is much more directly focused towards research and technological development. Also regarding their ages, the innovation agencies vary, with e.g. the PT-Jülich having been founded in 1974 and TA-CR in 2009.

The tasks of the study were the following: provide an overview of existing selection procedures of the innovation agencies taking part in the study, analyse and compare the procedures along a variety of criteria and develop recommendations on selection procedures helpful to all Taftie member organisations.

The key points of interest were selection and role of evaluators, selection criteria, ranking procedures and general process issues. A number of critical process issues were identified and ordered after three perspectives, i.e. policy, agency and customer perspective.

The 12 innovation agencies have many different funding programmes in their portfolio. 18 programmes were chosen and the key differences between the selected programmes and their selection processes characterised. The choice of programmes / funding schemes and their selection processes was based on the following premises:

- the intervention logic of a funding scheme, i.e. the way it is to have an impact on its target clientele, influences the employed selection processes. Hence, to be able to compare and learn from comparable processes, the intervention logic of the programme or scheme for which the selection process is applied needs to be similar.
- Moreover, programmes were chosen that are widespread, so every agency interested could contribute an own programme and also other agencies shall find it easy to use the results.

Finally two programme types were chosen and their selection procedures included:

- Type 1: Grant/loan schemes for R&D with business as beneficiaries. These programmes are historically amongst the first forms of business R&D funding by the state with a high funding rate and relatively little competition.
- Type 2: Grant schemes for collaborative R&D with business and research institutions as beneficiaries. Projects / programmes can be more research driven or company driven, selection procedures may vary accordingly. These programmes historically are much younger, more competitive and normally a smaller share of proposals is funded than with type 1 programmes.

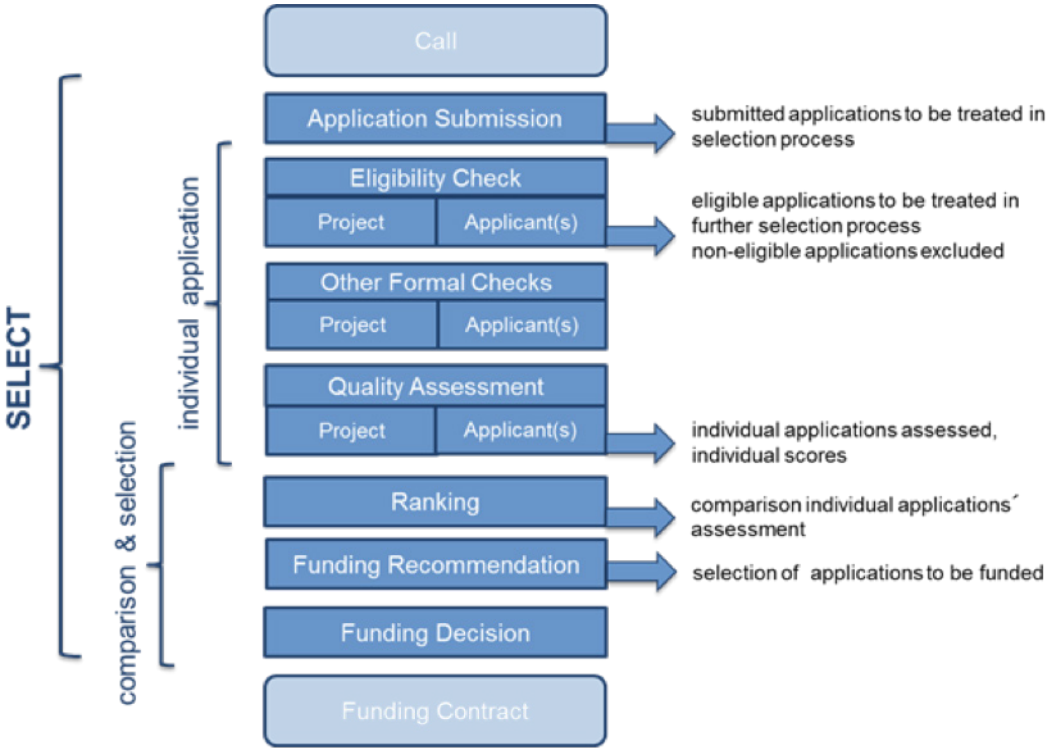
A framework was produced in order to facilitate a structured comparison against the backdrop of the challenging variety of agencies and programme types, called the backbone structure. The selection process covered here starts with the submission of the project application and ends with the funding decision. However, inputs into this process developed earlier, such as evaluation criteria, goals of the programmes, target groups for the call etc. are also covered.

Not all of the processes covered here have all the steps in place, while some will go through certain steps twice (e.g. in case of 2-step-proposals). This structure is used as a basis to describe and analyse the selected processes.

When analysing the two programme types along the backbone structure, specific characteristics become visible:

- Call (open, closed): whilst in type 1 programmes typically open calls are being used, type 2 programmes show closed calls and calls with thematic focus.
- Pre-counselling: with type 1 programmes there is typically one-to-one counselling (e.g. handling requests by firms regarding the programme), with type 2 programmes there is a concentration on information events.
- Submission: in all agencies / schemes mostly online tools are being used.

Figure 1: The backbone structure for selection processes



Source: Draft Final Report Task Force SELECT.

- Eligibility Check: both programme types use internal evaluation, in type 1 programmes sometimes applicants are directly contacted.
- Quality Assessment: with type 1 programmes more often internal evaluations (external experts mainly have tasks regarding the assessment of cutting-edge science and technology) and company visits are used. Type 2 programmes feature both internal and external evaluation but partly due to higher importance of scientific knowledge about science and technology external evaluation is more common. This circumstance leads to stronger coordination efforts within the agencies than in type 1 programmes.
- Ranking: in the selection procedures of many type 1 programmes no ranking-lists are made. In most type 2 programmes a ranking is necessary, often facilitated by a panel of experts, though there are different approaches.
- Funding Recommendation: with type 1 programmes funding recommendations more often are made by a single person (head of department, team leader etc.), whereas with type 2 programmes there mostly is a panel (selection committee, expert committee etc.), which makes the funding recommendation.
- Funding decision: There are no clear differences between type 1 and type 2 programmes regarding to the funding decision.
- Communication of funding decision: in both types of programmes applicants usually get informed by letter (or online tool). In those countries where an appeal/objection is possible applicants get more detailed information than in those countries where an appeal is either very unlikely or impossible.

Indeed, by way of comparison it becomes obvious that the differences between the practices utilised in the various agencies is sizeable, yet the differences between the procedures employed for selecting projects between the different programme types looms larger.

A major outcome of the study was the realisation that in hindsight of the differences between the agencies, their regulatory, budgetary and governance environment and the functions they have to fulfil in the respective innovation systems, it does not make sense to define a "best practice" for the selection processes (compare also Lundvall/Tomlinson 2001). Indeed, the latter have to be optimised regarding specific goals in order to be capable of speaking of "best" practices proper. They have to answer the question, "best for what?" or "best in relation to which goals?"

Rather we decided to aim for a set of "good practices" covering the project selection of innovation agencies. Accordingly, we want to define a good practice as a way of fulfilling tasks, which are understood to be effective and/or efficient in pursuing defined goals, such as producing innovations or enhancing the cooperation between firms and universities.

In fact, it soon became obvious that the innovation agencies, when selecting project proposals, have to make a number of choices. These have to be made in lieu of specific trade-offs, a few important of which shall be discussed here:

1. A decision on a very general level pertains to the form of calls to be utilised as part of the programme: should it feature closed or open calls. Accordingly, in the first case the project selection procedures will include a ranking with a competitive evaluation, whereas in the second case they will be based on single proposal evaluation on a first-come, first serve, basis. This also differentiates the two involved programme types. The distinction is caused by specific programme goals and availability of funds.

2. A further choice has to be made regarding the usage of internal and external experts in the project selection process. Both types of experts have their strengths and weaknesses (Kaufmann 2013).

   2.1 Internal expert usage may be preferred because of an expectation that they shall more strictly adhere to issues of confidentiality than external experts. The latter, however, may strengthen trust in the agency's procedures and legitimise the organisation vis-a-vis its target community.

   2.2. Confidentiality, however, usually stands in the way of transparency, therefore marking another trade-off.

   2.3. Internal experts engage more frequently into evaluation processes and therefore have often more experience, while external experts will be closer to latest developments in science and technology.

3. Organisations have to choose between efficiency and effectiveness.

   3.1. In general there is a choice between the costs of decision-making and reliability of selection procedures. The usage of several experts (e.g. four eyes principle) or invitation of highly trained experts is more expensive than less reliable practices with smaller numbers and/or less well trained experts.

   3.2. Other features of selection processes driving up its overall cost are for example efforts to standardise evaluator opinions, which may feature e.g. dominant usage of high scores or a prevalence of utilisation of low scores either due to personal idiosyncracies or cultural differences. Other evaluators might have a tendency to rate proposals higher in their own field of interest or yet others may rate those proposals lower not utilising their own preferred methodology.

4. A different form of trade-off is the tendency of many programmes to foster middle-of-the-road research using standard approaches. This may be fostered by the crowding out of evaluators, which often reason against the mainstream opinion in panel discussions, which have the task of creating a consensus between (internal or external) experts.

5. Yet another organisational choice has to be made between the evaluation of project excellence and considerations on a systemic level. There might be a trade-off between the emphasis on excellence in science and technology in a specific project proposal versus portfolio considerations aiming at the programme goal related spread of chosen projects, e.g. regarding the availability of specific technologies. Along similar lines regional aspects may be responsible for a certain project portfolio, aiming at the specific regional spread of chosen projects.

The comparison of the ways in which the 12 innovation agencies evaluate and select projects therefore shows that there is more than one solution to the challenge of financing the best research projects – "best" relating to fulfilling the programme goals. The regulatory, budgetary, socio-economic and political framework conditions the innovation agencies find themselves in form their potential options for possible and sensible solutions in the respective innovation systems. This is true for older programmes, such as type 1 schemes focusing on the competitiveness of firms, but also newer programmes, such as type 2 schemes influenced by the more societal problem oriented Grand Challenge rationales.

REFERENCES

Biegelbauer, P., S. Mayer, T. Palfinger (2016). Final Report Task Force SELECT. Vienna.

Biegelbauer, P., T. Palfinger (2016). „Auswahlverfahren von Forschungsförderungsorganisationen im internationalen Vergleich." fteval Journal 41(March) 2016, pp. 63-68.

Bulathsinhala, N. (2014). "Ex-ante evaluation of publicly funded R&D projects: searching for exploration." Science and Public Policy 42(2): 162-175.

Kaufmann, P. (2013). FTI Gutachtersysteme im Vergleich. Wien, KMU Forschung Austria.

Lamont, M. (2009). How Professors Think: Inside the Curious World of Academic Judgment. Cambridge, U.S., Harvard University Press.

Lepori, B., P. van der Besselaar, M. Dinges, B. van der Meulen, B. Potì, E. Reale, S. Slipersaeter and J. Theves (2007). "Indicators for Comparative Analysis of Public Project Funding. Concepts, implementation and evaluation." Research Evaluation 16(4): 243-255.

Lundvall, B.-Å. and M. Tomlinson (2001). Policy Learning Through Benchmarking National systems of innovation - Learning by Comparing. Report for the Advanced Benchmarking Concepts (ABC) Project. Aalborg University, Denmark.

Mallard, G., M. Lamont, J. Guetzkow (2009). "Fairness as Appropriateness: Negotiating Epistemological Differences in Peer Review." Science, Technology & Human Values 34(5): 573-606.

Sattler, D., P. McKnight, L. Naney and R. Mathis (2015). "Grant Peer Review: Improving Inter-Rater Reliability with Training." PLOS ONE 10(6).

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